UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
JOHN F. KENNEDY FEDERAL BUILDING
BOSTON, MASSACHUSETTS 02203-0001

July 2, 1996

Mr. Philip Otis
U.S. Department of the Navy
Northern Division - NAVFAC
10 Industrial Highway
Code 1811/PO - Mail Stop 82
Lester, PA 19113-2090

Re: Responses to EPA's Comments on the Draft Final of the Facility-Wide Freshwater/Terrestrial and Marine Ecological Risk Assessment Reports (ERA), dated May 15, 1996, Former Naval Construction Battalion Center, Davisville, RI

Dear Mr. Otis:

Pursuant to § 7.6 of the NCBC Federal Facility Agreement (FFA), the Environmental Protection Agency's (EPA) has reviewed the above referenced documents. Please find our comments enclosed.

Overall, the Navy has been unresponsive to EPA's major concerns that the draft final Facility-Wide Freshwater/Terrestrial ERA report does not clearly and concisely present complete data analyses that are coupled with conclusive and unambiguous interpretations for each of the major lines of evidence evaluated. As reflected in the first paragraph of the response document, Navy simply dismisses EPA's long-standing and often stated concerns as a mere format issue.

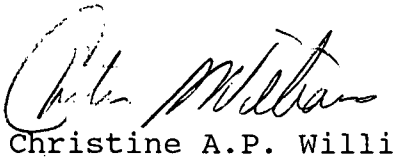
The need to provide a series of roll-up tables that present key data on chemical risks, biological data, and ecological observations, as a foundation for the "weight of evidence" (WOE) arguments that the Navy wants to present, has been stressed repeatedly by EPA for nearly two years. Contrary to the Navy's argument, the issue of greatest concern is not simply the report's format, but the interdependence of the report's useability and scientific credibility. Quite simply, until the WOE is presented clearly and concisely in tabular and graphic formats, as a scientific foundation for the text discussions and unambiguous conclusions, both the scientific credibility of the data interpretations and the public's confidence in the entire report, as a basis for risk management decisions will be undermined.

Although most of the needed information may appear somewhere in each of the reports, until this information is better organized and more completely discussed in a clear, concise, and conclusive manner, it is of very limited value. Please note that in our opinion the Marine ERA document is much closer to being final than the Terrestrial/Freshwater ERA document.

In order for the decision process for several sites to move forward expeditiously, it is critical that the Navy address EPA's comments on both the ERA documents as soon as possible. EPA proposes that the Navy, RIDEM and EPA meet to resolve all outstanding issues within seven days after Navy has provided EPA with written responses to the EPA comments in this letter or with a redlined version of the documents with a list of the responses cross-referenced to the pages in the redlined document that address the particular comment. EPA is hopeful that such an approach will obviate the need to resort to the formal dispute resolution provisions of the NCBC Federal Facility Agreement.

If you have any questions concerning this letter, please contact me at (617) 573-5736.

Sincerely,



Christine A.P. Williams
Remedial Project Manager
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Enclosure

cc: Richard Gottlieb, RIDEM
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Review of the Navy's May 15, 1996 Responses to EPA Comments on Draft Final Reports for the Facility-Wide Freshwater/Terrestrial Ecological Risk Assessment and the Allen Harbor and Calf Pasture Point Marine Ecological Risk Assessment at the former Naval Construction Battalion Center, Davisville, RI

This document addresses the extent to which the Navy's above referenced responses to EPA's review comments on the terrestrial and marine ecological risk assessment (ERA) reports are responsive by adequately resolving or agreeing to satisfy EPA's technical concerns in the final versions of these two reports. Consideration of the overall adequacy of the response document precedes a more detailed account of those responses that either adequately or inadequately resolve the technical concerns raised in EPA's original review comments. Separate discussions are provided in each section for the terrestrial ERA versus marine ERA responses.

Overall Adequacy of the Navy's Comment Responses

Overall, the Navy has been unresponsive to EPA's major concerns that the draft final ERA reports do not clearly and concisely present complete data analyses that are coupled with conclusive and unambiguous interpretations for each of the major lines of evidence evaluated. As reflected in the first paragraph of the response document, Navy simply dismisses EPA's long-standing and often stated concerns as a mere format issue.

The need to provide a series of roll-up tables that present key data on chemical risks, biological data, and ecological observations, as a foundation for the "weight of evidence" (WOE) arguments that the Navy wants to present, has been stressed repeatedly by EPA for nearly two years. Contrary to the Navy's argument, the issue of greatest concern is not simply the report's format, but the interdependence of the report's useability and scientific credibility. Quite simply, until the WOE is presented clearly and concisely in tabular and graphic formats, as a scientific foundation for the text discussions and unambiguous conclusions, both the scientific credibility of the data interpretations and the public's confidence in the entire report, as a basis for risk management decisions will be seriously undermined.

We do not share the Navy's view "that the necessary information has been adequately presented," since the presentation of results is by no means adequate and because some of the analyses and discussions of data the EPA requested on previous occasions are still missing. Although most of the needed information may appear somewhere in each of the reports, until this information is better organized and more completely discussed in a clear, concise, and conclusive manner, it is of very limited value. The Navy's argument, by analogy, is comparable to a librarian claiming that there is not a problem with the utility or value of the library, because although many are improperly catalogued or shelved, none of the books are actually missing from the library building.

Terrestrial ERA

The Navy's refusal to provide the risk characterization summary tables requested by EPA for terrestrial, wetland, and aquatic receptor groups and indicator species, at both the watershed and EEZ levels, is unacceptable. An enhanced, interpretive discussion of risks built around these tables is badly needed because the ERA does not yet convey a clear and convincing series of conclusions as to:

- The most likely, actual chemical risks to each of the ecological receptor groups and indicator species posed by medium-specific contaminants of concern (COCs) and COC classes
- Which COCs and COC classes are the key risk drivers for each species/medium and watershed/EEZ
- The spatial distribution of these chemical risks at the niche/EEZ level within each watershed

  Which EEZ-specific "hot spots" of chemical risk are driving watershed-level risks and thereby offer the best opportunity for focussed remedial actions needed to reduce the watershed risks to an acceptable level

Although the Navy's risk assessors may have a clear understanding of EEZ and watershed level risks, this has not yet been adequately conveyed to the reader in the tables, figures, data interpretations, discussions and conclusions of the draft final report.

Marine ERA

The Navy has been far more cooperative by providing mostly adequate responses to the review comments on the marine ERA, than it has been for the terrestrial ERA. In contrast to its argumentative responses to similar comments on the data analysis and presentation in the terrestrial ERA, the Navy's agreement to provide WOE summary tables in the final marine ERA report, to integrate chemical risk and biological effects data, will assure that the marine report is conclusive, scientifically defensible, and credible as a foundation for risk management decisions. Although many of the inadequate portions of responses to comments on the marine ERA are significant, the Navy agrees to incorporate most of the requested changes. Overall, therefore, these responses do engender confidence that progress will continue in refining the results and conclusions of the marine ERA.

Classification of Comment Responses

The responses to comments are grouped into the following three categories:

- Adequate Responses
- Marginally Acceptable Responses
- Unacceptable Responses

Adequate responses are identified without any discussion.

Marginally acceptable responses pertain to those issues for which a compromise resolution should be considered, because the Navy's refusal to alter their technical approach on these aspects of the ERA may not significantly alter its overall conclusions. Responses that are generally adequate but for which further comment clarification was requested by the Navy, also are included in the section on these marginal responses.

Responses considered unacceptable are discussed, when possible, at a thematic level by identifying groups of similar or interrelated comments/responses (e.g., roll-up tables). These comments pertain to key technical issues on which any compromise could markedly alter the results/conclusions and/or overall useability/credibility of the ERA.

Adequate Responses

The following were adequate responses to comments on the terrestrial and marine ERA, in that they provided the requested clarification or resolution of issues raised and/or indicated the Navy's agreement to resolve certain issues in the final versions of the ERA reports.

Terrestrial ERA

Adequate responses were provided to Comment Nos. 1, 15(a)-(c), 15(f), 16, 17, 19, 21(c)-(g), and 22(b).

Marine ERA

Adequate responses were provided to Comment Nos. 1, 3, 4, 7, (8-NOAA comment), 13, 14.2, 14.3, 14.6, 16 (although cited table attachment was not received), 17, and 18.

Marginally Acceptable Responses and/or Comment Clarifications

Although not technically convincing as a rebuttal to the concerns raised by the reviewers, EPA accepts the following responses in the interest of focusing on the more critical, unresolved issues of data analysis, interpretation, and presentation. Responses that were partly or entirely acceptable, but for which the Navy had requested more clarification from EPA, also are discussed here (e.g., Response No. 5).

Terrestrial ERA

Response Nos. 14, 15(d), 15(e), 18, 20, 21a, 21b, 22d, and 23 are marginally acceptable, as explained below. Although acceptable overall, Response No. 21b requested additional clarification, which is provided below.

Response No. 14 offers an unconvincing rebuttal, perhaps in part because it misses the point of the comment, which pertained only to the use, presumed value, and interpretation of the iron normalized (not the non-normalized) data. If Navy insists that iron-normalized sediment mass balances are indeed meaningful and valid, this approach must be carefully explained and more rigorously/scientifically defended in the final report.

Response Nos. 15(d) and (e), respectively, pertain to EPA's requested use of TRC22 as an impacted station in Mill Creek and of HCW01 in Davol Pond as an upstream reference location for Hall Creek. Since it would be difficult to distinguish impacts on Mill Creek from the golf course versus upstream waste sites, the retention of TRC22 as an impacted location is not critical. Although ideal as a watershed-specific upstream reference station for the Hall Creek watershed, EPA's requested use of Davol Pond also is arguably non-critical, in part because it is a pond rather than a stream channel location. Hall Creek is the sole exception, therefore, to the rule of using a "same stream" reference location for assessing watershed-specific impacts and risks to aquatic communities.

Response No. 18 claims that laboratory contaminants were omitted from the COC screening "with regulatory review and consideration," but we do not recall any such acceptance of *a priori* COC omissions by EPA. The comment had simply noted that better justification was needed for COC omissions, such as comparisons to benchmarks.

Response No. 20 is incomplete, because the text should explain why 500 iterations is sufficient. Please provide more project-specific technical justification for this, such as support for the underlying assumption, that the random sampling conducted for the Monte Carlo analysis results in a simulation is a representation of all possible outcomes based on the distributions of input parameters that are being varied. For example, it is possible to sample a biased distribution while using Monte Carlo methods. Different techniques can be employed to ensure that proper sampling was conducted. For example, some sampling techniques force the random generator to select values from various sections of the distribution to ensure a representative sample (e.g. Latin Hypercube). Another method may be to plot the sampled distributions for each input variable, and a third may be to simply review the output data for a random number sampling error. Please explain more carefully in the text those constraints used by your model to ensure that a proper Monte Carlo simulation was conducted.

Response No. 21(a) is adequate only if one-half of the sample quantitation limit (SQL) is used in COC screening and risk calculations for all non-detections of PCBs and other COCs for which at least one positive detection was obtained in the same watershed and sample medium. Hence, all Table 5-7 entries of one-half of the SQL must be rolled into the pertinent COC screening, exposure assessment and risk calculation steps of the ERA.

Response No. 21(b) had requested clarification of the comment. Since ambient water quality criteria (AWQC) are not available for all dissolved metals (e.g., none are approved for mercury), a combination of total and dissolved AWQC is expected to be applied by the Navy in the ERA. All

COC screening and risk calculation tables and discussions, thus, must clearly indicate for each metal whether total versus dissolved concentrations/AWQC have been applied.

Response No. 22(d) adequately explains why many entries appear to be missing for the locations of maximum COC concentrations, but should propose to footnote pertinent tables with this same explanation. However, we do not agree with the second part of Response No. 22(d), which dismisses as unimportant the current lack of tables that report both the maximum hazard quotients (HQs) and their locations for each watershed and EEZ. The main reason for calculating EEZ-level risks is to identify which habitats/EEZs are driving most of the risk within each watershed, without having to perform site-specific ERAs. As explained to the Navy previously, it is also critical (and to Navy's advantage) for agency risk managers to know exactly which areas/locations *within* each of the EEZs contribute most of the risk, so that removal actions can be targeted on as few individual "hot spots" (i.e., EEZs or locations) as possible in order to reduce EEZ and watershed risks to acceptable levels.

Response No. 23 also is marginally acceptable, since it is a format and useability issue that the Navy proposes to resolve by means of footnotes.

Marine ERA

Response Nos. 2, 14.1, 14.4, and 14.5 are marginally acceptable. Although entirely acceptable, Response Nos. 5 and 12 requested additional clarification. Each of these responses are discussed below.

Response No. 2 argues that the Navy's "official minutes" of the December 14, 1995 meeting with EPA and other agencies at NCBC documented that "it was unanimously agreed to exclude incorporation of shellfish data into the Phase III risk characterization." These minutes are incorrect and were never officially endorsed by EPA. As first explained in EPA's January 17, 1996 letter to the Navy (Christine Williams to Phil Otis) and reiterated in this review comment, EPA had requested that *both* sediment and shellfish tissue data be integrated into the marine ERA. Also unacceptable is the Navy's claim in Response No. 2, that DDD, DDT and chlordane were not evaluated in the Phase III ERA because "it was not possible to demonstrate data comparability." In Section 3.1.2 of the draft final report, Navy stated "Although there are data compatibility issues (see Section 3.2), to the extent possible, RAPS data will be included in the evaluation of the Phase III Marine Ecological Risk Assessment Study for Allen Harbor." No subsequent discussion in that report documented that the data were *non-comparable* among various phases of the study and even the contaminant concentration differences cited later in Section 3.2, between locations separated by 125 meters, cannot be considered as invalidating the integration of these RAPS Phase I data into the marine ERA. Despite EPA's repeated requests for integration of both shellfish tissue and sediment pesticide data from the RAPS Phase I, a reasonable compromise at this time would be to accept the Navy's proposed stand-alone calculations and discussions of HQs for these pesticides, while also requiring similar stand alone HQs and text discussions of the RAPS Phase I shellfish tissue data. Navy also should provide a discussion of the uncertainties resulting in the overall conclusions of the ERA that

may have been introduced by this lack of statistical data integration.

Response No. 14.1 is unconvincing for at least two reasons. First, no attempt has been made to document or evaluate the "confounding factors such as natural variation..." as a basis for invalidating the useability of bivalve condition index (CI) data from the agreed-to reference locations. Secondly, it is illogical to claim that "evidence of stunted growth invalidates use of the data..." and "makes conclusions based on reference site comparisons invalid." If the reference site clams already are stunted, then the even greater relative degree of stunting in Allen harbor becomes even more significant, not invalid. Since reference stations were pre-selected as a source of data with which to infer incremental site impacts and risks, they should be not be rejected. However the Navy may want to discuss these issues in the uncertainty sections of the report.

Response Nos. 14.4 and 14.5 agree to a compromise revision of the scale used to translate numerical data on biological effects into qualitative assessment scores for use in the WOE roll-up tables. The only unconvincing element of Response No. 14.4 (second paragraph) is that there is no need to fully understand exposure-effects relationships for neoplasia, since comparisons are being made between the incidence of neoplasia at Allen Harbor's impacted stations versus that for reference stations. Increased neoplasia *relative to the reference stations* can be considered as a potential effect of Allen Harbor contamination if the neoplasia is spatially coincident with elevated sediment risks and/or other observed biological effects (e.g., toxicity). The Navy's proposed 50 percent threshold, thus, is acceptable *only if* it is defined as a neoplasia incidence that is 50 percent greater than the incidence observed at the reference sites. We also do not agree with Navy's claim in Response No. 14.5, that "an increased number of species observed to have elevated COCs does not provide evidence of greater impact." To the contrary, the degree of impact/risk to both the benthic community and to predators feeding on that community increases in direct proportion to the total number of individuals and species that bioaccumulate the COCs. Thus, risk should be scored as lower if only two species are enriched than if more than two are enriched.

Response Nos. 5 and 12 are adequate, but the Navy requested an example format for a WOE roll-up table of results for multiple species/media/COCs, as well as further guidance as to which data the various agencies prefer to have plotted on a small number (3 to 5) site maps of the various affected habitats in Allen Harbor. The examples of risk quotient summary tables provided for the terrestrial ERA illustrate the general concept of such tables, which also should include other numerical data such as toxicity test results, neoplasia incidence, and shellfish condition indices. Since the Draft Final report already provided a partial WOE roll-up in Table 7.1-1, it should suffice for the Navy to make those improvements of this WOE table requested elsewhere (e.g., Comment No. 12). As focal points for further discussion with other agencies (NOAA, USFWS), we recommend that the following maps of marine ERA results be presented:

- Location-specific incidence of neoplasia, shellfish condition indices suggesting adverse effects, and matching EEZ-specific HIs for each COC class (one figure)

- Location-specific incidence of whole sediment toxicity and matching HIs for each COC class (one figure with all test species)

- Location-specific incidence of sediment pore water toxicity and corresponding sediment pore water HIs for each COC class (one figure)

  EEZ-level sediment HIs and those corresponding, point-specific HQs for those "hot spots" and COCs considered to be key drivers of EEZ-level HIs (one map)

- One figure illustrating mean and maximum, sediment HIs for each COC class, for each of the four broad habitat categories - salt marsh, intertidal mud flats, subtidal surface sediments, and subtidal deep core sediments

Even if location-specific data mapping should prove to be impractical or infeasible, at a minimum, the EEZ-level mapping of chemical risk quotients and biological effects data is critical information that should be presented.

Responses Considered Inadequate and/or Incomplete

The following responses to comments were either inadequate and/or incompletely responsive, by failing to convincingly rebut the review comment and/or to resolve technical issues raised by the reviewer.

Terrestrial ERA

Response Nos. 2, 3, 5, 6, 7, 8, 9, 10, 11, 12a, 12b, 13, 22a, 22c, 24, and 25, which inadequately resolve the issues raised, are discussed below.

Response No. 2 does not adequately resolve the incorrect methods used to select COCs based on background and benchmark screens. Most of the Navy's account of the December 14, 1995 meeting is correct. However, at no time during or after that meeting did we agree, either implicit or explicit, that "any analyte whose site maximum exceeded three times the reference mean" be "carried forward as a COC." Response No. 3 is inadequate because it repeats Response No. 2.

Response No. 5 is not acceptable because, as explained in the original comment, the benthic community analyses were simply performed incorrectly in the draft final report. The Navy has forgetfully misconstrued this comment as a "new" request. In fact, EPA originally requested that the Navy qualitatively assess and report any obvious, spatial correlation between elevated sediment or surface water HQs/HIs and impairment of benthic communities nearly two years ago, after reviewing the ERA report prepared by TRC. The Navy and its current contractor had agreed to do this even before EPA provided the additional, detailed guidance in the original comment, as to how to correctly plot the impacted versus reference benthic community indices, on a watershed-specific level. This is simply a reiterated request for accurate data analysis/presentation, which in effect has already been

done for the Navy in the review comment! This integration data on benthic impairment relative to the same-stream reference location with information on location/EEZ-specific HQs/HIs for the same stream, is not a new request but a very common, fundamental element of the WOE approach to any ERA.

Response Nos. 6, 7, 8, 9, and 10 pertain mostly to the continued lack of clearly and concisely integrated roll-up risk calculation tables. As noted in the general comments on this broad theme presented above, this is not simply a format issue, but is a critical issue of data presentation and results interpretation. The report currently presents but does not reconcile the often very different HQs/HIs, calculated using the deterministic versus stochastic models, nor does it reach any firm conclusions by interpreting the WOE, at either the watershed or EEZ levels. Until roll-up tables such as those attached for the Hall Creek Watershed are prepared as a foundation for corresponding data interpretations and conclusions in the risk characterization, no clear and realistic picture can emerge as to the probable risks to specific receptors at the watershed and EEZ levels. These tables also are needed to identify those COC classes, salinity regimes/EEZs, and media that drive most of the watershed risk for each receptor group/species, as a basis for focussing remedial actions on specific EEZs and hot spots at which maximum risk reduction can be achieved for each watershed at the lowest possible expense. Without a more conclusive interpretation of the various subsets of alternative HQs/HIs, risk managers will have little choice except to apply the highest subset of risk quotients in their decision making. Although the Navy's risk assessors have and should be able to manipulate these data in electronic format, to generate the needed roll-up tables, these data have merely been placed in the report without adequate context. With respect to the large volume of data generated in the ERA, most of the supplemental data presentations requested by EPA could have been integrated within either the pre-existing tables or the requested roll-up tables. An example of an EEZ roll-up table has been provided for the Hall Creek Watershed in Table 1-3, as an example to be followed for each watershed, to provide a basis for interpretive text discussions and overall conclusions in the final report.

Response No. 11 fails to resolve the concerns raised, because although we agree with the Navy as to the impact of foraging ranges on the risk estimates, this does not negate the need for EEZ-specific roll-up tables of risk quotients. The EEZ-specific data can be useful to explain, support and augment conclusions drawn at the watershed level and must be reviewed before a risk management decision can be made. While the reviewer agrees that the data is available in the report, the author makes gleaning information on which EEZs of an impacted watershed are driving the risk a tedious project by relegating the EEZ-specific data to raw output tables such as 6-13 and 6-14 and by not including discussion.

Response Nos. 12a is inadequate because although they all occur naturally, metals cannot be defensibly omitted from any COC screening effort, because they are potentially toxic and may be site related.

Response No. 12b is unacceptable, irrespective of exposure and bioavailability assumptions, because there are no EPA-approved AWQC for the dissolved forms of metals such as mercury, as explained in the original comment.

Response No. 13 misses the point of the comment, which was simply that raw surface water data are presented without any discussion whatsoever! In addition, the response distorts the factual record by lamenting that the Navy "pursued surface water mass balance analysis research through two drafts," since in its first attempt to respond to the requested water quality enhancement evaluation of impacted wetlands, it was the Navy's contractors who erroneously attempted to perform a *sediment* mass balance. Again, no "additional exploratory analysis" is requested; only that the Navy provide text to match the tables.

Response No. 22a is simply incorrect and/or misleading, at least in part, based on further scrutiny of Table 5-7 and backup documentation in the appendices. A review of the Aroclor 1260 data for the Allen Harbor watershed, for example, indicates at least one major discrepancy between the explanation in the response and the data tables of the draft final report. In the Allen Harbor watershed, analyses of both fresh and marine sediment samples yielded positive detections for Aroclors, in both salinity regimes. However, Table 5-7 reports Aroclor 1260 concentrations of 1.9 ppm in both types of sediments. This would appear to be the application of surrogate data from one salinity regime to another in which data are lacking, as explained in the response, except that this 1.9 ppm value cited for Aroclor 1260 in Table 5-7 could not be verified in any of the raw data tables for the terrestrial or marine ERA reports. This discrepancy and other model input errors found in Table 5-7, represent incorrect uses of analytical data that must be corrected systematically.

Response No. 22c inadequately addresses the lack of Allen Harbor risk calculations for Total Aroclor, by arguing that "there are no TRVs for this summed product." This potential lack of TRVs for Total Aroclor had been anticipated and discussed at great length with the Navy and its contractors, as a potential for PCB risks to "fall through the cracks" of the terrestrial ERA. This response is unacceptable simply because the Navy had agreed to preclude such omissions by calculating risks for all Aroclors, either as specific Aroclors or Total PCBs, by using the most conservative available surrogate TRV for those PCBs lacking Aroclor-specific TRVs.

Response No. 24 is not acceptable and entirely misses the point of the comment. As clearly stated in the comment, the problem is that the report text is grossly incorrect and misleading in claiming the there "is no potential for risk since there is no exposure pathway" for these landfill seeps. Not only is this statement is blatantly incorrect irrespective of seep locations relative to the high tide mark (i.e., marine and/or terrestrial exposures do occur), but the Navy has now clarified that the seeps are indeed terrestrial points of exposure during both low and high tides, because they are above the intertidal zone. The discussion of exposure pathways and scenarios for these landfill seeps, in which dissolved PCB levels as high as 8 ppb have been reported for filtered seep water samples, must be corrected in the final report.

Response No. 25 is unacceptable with respect to the issue of benthic community risks and im for the same reasons discussed above regarding Response No. 5. Objective, integrated WOE interpretations and qualitative discussions of the co-occurrences of elevated HQs/HIs and impairment of benthic communities have been requested repeatedly during the past two years.

Marine ERA

Response Nos. 9, 10, 11, 14.7, 14.8, and 15, which do not adequately resolve the issues raised, are discussed below.

Response Nos. 9 and 10 are unacceptable with respect to the agreed-to methods for deriving sediment to biota bioaccumulation factors (BAFs). Response No. 9 incorrectly claims that EPA had agreed to the use of the EqP approach to calculate tissue residues for food chain transfer; the only agreed use of EqP was to infer pore water concentrations of organic COCs for the purpose of calculating pore qater HQs/HIs. The use of EqP to assess bioaccumulation was neither discussed nor agreed to by EPA. Rather it was stressed by EPA on several occasions and agreed to by the Navy (as recently as December 14, 1995) that, contrary to Response No. 10, only the non-normalized, sediment-to-biota BAFs should be used in the terrestrial ERA food chain models. The marine BAF roll-up table agreed-to by the Navy must be provided to document both the marine BAF derivation and the consistency between the BAF datasets in the marine and terrestrial ERAs. Although the theoretical arguments advanced in the response have no bearing on this prior agreement as to the technical approach, such discussions may be useful additions to the uncertainty analysis of the ERA.

Response No. 11 is simply incorrect, because irrespective of whether the Navy chooses to designate AH13 as an intertidal or subtidal sample, it appears the subtidal habitat (LS-D) on Figure 6.0-1, but is used in both the subtidal (LS-D: Tables A1-1.1B and A3-1.5B-Subpart b) and intertidal (W: Table A3-1.5A-Subpart d) datasets of the appendices. How can the same sample location justifiably be apportioned to two different habitats/tidal regimes?

Response Nos. 14.7, 14.8 and 15 unacceptably propose risk scaling schemes that apply normalized average HQs, based on the total number of COCs evaluated, which could lead to a significant understatement and misrepresentation of chemical risks. This is not a defensible approach to an ERA, since for example, three COCs with HQs of 25, 1, and 1 would have a normalized HQ of 9 (beneath the HQ=10 threshold proposed) despite the fact that the maximum is nearly three times higher than this normalized mean HQ. The Navy's alternative scaling also would fail to account for COC class-level HIs and for potential synergistic effects of multiple COCs. The scaling schemes requested by EPA in these original comments should be used.

Raw Data Input for Deterministic Terrestrial Roll-up

Chemical	Heron		Mink		Hawk		Robin		Shrew		Tern	
	avg	max	avg	max	avg	max	avg	max	avg	max	avg	max
DDT	166	935.2			40	765.1	31	588.12		2.12	4	3.52
Alpha-chlordane										2.01		
gamma-chlordane						9.95				2.48		
DDE						24.48		3.45		2.39		
Dieldrin		2.3		25.87		25		7.16	2	139.2		
Endrin				23.01		8.95				72.61		
Endrin Ketone				22.98		8.96		2.12	2	102.7		
Sub-total	**166**	**937.5**	**0**	**71.86**	**40**	**842.44**	**31**	**600.85**	**4**	**323.51**	**4**	**3.52**
1248		2.89	4	107.3		29.47		6.93	11	4.61		
1254		7.94		27.17		85.83		20.32	10	436.08		
1260	2	158.8	250	17924	25	1809	7	478.9	35	2508		
Sub-total	**2**	**169.63**	**254**	**18058.5**	**25**	**1924.3**	**7**	**506.15**	**56**	**2948.69**	**0**	**0**
Arsenic			6	8.97						3.18		
Barium										3.23		
Cadmium									5	28.6		
Manganese	11	10.01				2.48		2.83			14	7.36
Vanadium			14	17.97					2	7.82		
Zinc	17	22.02				6.6		2.33			6	5.83
Sub-total	**28**	**32.03**	**20**	**26.94**	**0**	**9.08**	**0**	**5.16**	**7**	**42.83**	**20**	**13.19**
2,4 Dinitrotoluene										2.39		
Anthracene						3.45						
Benzo(a)anthracene				11.71						6.62		
Fluorene		3.62		1.53		40.64		2.28				
Ideno(1,2,3-cd) pyrene				4.49						2.42		
Sub-total	**0**	**3.62**	**0**	**13.24**	**0**	**44.09**	**0**	**2.28**	**0**	**9.01**	**0**	**0**
Total	**364**	**2,246**	**528**	**36,288**	**130**	**5,543**	**76**	**2,219**	**127**	**6,587**	**28**	**20**

Table 1-1 Hall Creek Watershed
Summary of Surface Water and Sediment Risk Calculations

Chemical Class	Pelagic Surface Water Risks[1]						Benthic Sediment Risks[2]					
	Integrated		Fresh		Marine		Integrated		Fresh		Marine	
	avg.	max.	avg.	max.	avg.	max.	avg.	max.	avg.	max.	avg.	max.
Inorganics	NA	NA	NC	NC	NC	NC	NC	203	NC	NC	NC	NC
PCBs	NA	NA	NC	NC	NC	NC	NC	16	NC	NC	NC	NC
Pesticides	32	1	NC	NC	NC	NC	NC	2,410	NC	NC	NC	NC
SVOCs	NA	NA	NC	NC	NC	NC	NC	203	NC	NC	NC	NC
VOCs	NA	NA	NC	NC	NC	NC	NC	3	NC	NC	NC	NC
Total HI	32	1	-	-	-	-	-	2,835	-	-	-	-

Notes: Use this section for notes that will facilitate the readers understanding of the data presentation.

1. Average data compiled from Table 6-1 maximum data compiled from Table 4-14
2. Maximum data compiled from Table 6-5

NA = Chemicals within this class were not identified as COCs
NC = Risks were not calculated by salinity regime, rather all sample were integrated and one risk estimate made using the lower of the fresh or marine AWQC.
HIs are rounded to the nearest integer.

Tabl 1-2 Hall Creek Watershed
Summary of Terrestrial Risk Calculati ns

Chemical Class	Deterministic EEZ-Weighted Watershed Hazard Indices[1]												Probablistic Watershed Hazard Indices[2]											
	Heron		Mink		Hawk		Robin		Shrew		Tern		Heron		Mink		Hawk		Robin		Shrew		Tern	
	avg.	max.	avg.	max.	avg.	max.	avg.	max.	avg.	max.	avg.	max.	stoch.	arth.	stoch.	arth.	stoch.	arth.	stoch.	arth.	stoch.	arth.	stoch.	arth.
Inorganics	28	32	20	27	-	9	-	5	7	43	20	13	40	39	25	24	4	2	3	2	17	8	22	35
PCBs	2	170	254	18,058	25	1,924	7	506	56	2,949	-	-	75	3	8,491	255	917	28	229	7	1,628	55	-	-
Pesticides	166	938	-	72	40	842	31	601	4	324	4	4	494	413	34	2	298	42	201	31	157	6	96	83
SVOCs	-	4	-	13	-	44	-	2	-	9	-	-	2	-	11	-	21	-	2	-	9	-	-	-
VOCs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total HI	196	1,143	274	18,170	65	2,820	38	1,114	67	3,324	24	17	611	455	8,560	281	1,240	72	434	41	1,810	69	118	118

Notes: Use this section for notes that will facilitate the readers understanding of the data presentation.

1. Average data compiled from Table 6-13, maximum data compiled from Table 6-14. In both cases the sum row was used (i.e weighted watershed value) and only HQs greater than 2 were used to calculate the class level HIs.
2. HIs based on the stochastically modeled mean are summarized from Table 6-7, HIs based on the arithmetic mean are summarized from Table 6-8. In both cases only HQs greater than 2 were used to calculate the class level HIs.

NC = Risks were not calculated by salinity regime, rather all sample were integrated and one risk estimate made using the lower of the fresh or marine AWQC.
HIs are rounded to the nearest integer.

Table 1-3 Hall Cre k Watershed
Summary of Terrestrial Risk Calculations by Ecological Exposure Zone

Chemical Class	Deterministic EEZ Hazard Indices[1]									
	UPL		EFS		EOW		FCH		SUM[2]	
	avg.	max.	avg.	max.	avg.	max.	avg.	max.	avg.	max.
Inorganics										
Heron									28	32
Mink									20	27
Hawk									-	9
Robin									-	5
Tern									7	43
PCBs										
Heron									2	170
Mink									254	18058
Hawk									25	1924
Robin									7	506
Tern									56	2949
Pesticides										
Heron									166	938
Mink									-	72
Hawk									40	842
Robin									31	601
Tern									4	324
SVOCs										
Heron									-	4
Mink									-	13
Hawk									-	44
Robin									-	2
Tern									-	9
VOCs										
Heron									-	-
Mink									-	-
Hawk									-	-
Robin									-	-
Tern									-	-

Notes:

1. Average data compiled from Table 6-13, maximum data compiled from Table 6-14.
and only HQs greater than 2 were used to calculate the class level HIs.
2. The EEZ-weighed watershed average was caclulated according to the following formula:
HIs are rounded to the nearest integer.